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ABSTRACT

The influence of participant cognitive style (Field-Dependence-Independence) on human relations training outcomes was investigated. The relationships among dogmatism, androgyny, participant age, and highest educational level attained, i.e., the independent variables, were also examined for possible correlations with various outcome measures. None of the self-report outcomes correlated with any of the independent variables. Field Independence was the only variable strongly correlated with participant peer rankings of various behaviors/outcomes. Field Independents (FIs) were judged by their peers to: (1) be more task oriented; (2) be more maintenance oriented; (3) be more satisfied with the laboratory experience; and (4) have learned the most from the laboratory experience when compared to Field Dependents (FDs). The four stated outcome measures were strongly intercorrelated. (Author)

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High Learners in Human Relations Training: A Study of the Influence of Cognitive Style on Training Outcomes

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High Learners in Human Relations Training: A study of the Influence of Cognitive Style on Training Outcomes

Introduction

Cognitive Style and Interpersonal Behavior: An Overview

The personality variable of cognitive style (how individuals organize their perceptions) has implications for the way people behave interpersonally. A review of cognitive style research (Mezoff,1980c; Witkin & Googenough, 1977a; Witkin, Moore, Goodenough, & Cox, 1977) suggests that there is a relation between a participant's cognitive style and his/her behavior in a human relations laboratory. Specifically, it was predicted that persons with a Field-Independent cognitive style would tend to assume the task-oriented roles in the laboratory, whereas Field-Dependent participants would tend to assume group-maintenance oriented roles in the laboratory.

Difficulty in Ascertaining HRT Outcomes

To know exactly the impact of HRT on laboratory participants is often difficult. These difficulties stem from two causes: 1) it may be hard to discern when the changes and outcomes from training occur and how long they persist, and 2) there are measurement problems and conceptual complexities inherent in trying to find out exactly what are the outcomes from HRT. Effects have been noted immediately after a training experience, and yet these

sometimes fade out or become extinguished over time (Smith, 1975). Other effects may not be immediately apparent, yet can reach statistically significant levels after a period of weeks or months (Harrison, 1966). (For a detailed treatment of the broad variety of possible outcomes from training see Smith (1975) or Mezoff (1980d). Mezoff's review also discusses many of the problems inherent in measuring training effects.)

Cognitive Style and Training Outcomes: An Overview

In addition to the methodological difficulties inherent in measuring outcomes from training, the evaluation problem is compounded by the tendency for most HRT research to employ a "main effects" model. A main effects model compares the average outcomes (or gains) from a treatment group to the average outcomes from a control group. There may be large differences among participants in their reactions to, and learning from, the HR laboratory experience. However, the main effects model may fail to discern these differential effects because the model considers only the average gain across all the participants.

A matching model (or aptitude-treatment-interaction) approach (Mezoff, 1980a) appears to provide some insight into the phenomenon of the differential effects of training. By investigating the effects of training across various sub-populations of HRT participants, one may be able to discern significant interactions between certain types of participants and certain training outcomes. These

interactions found by the matching model approach suggest a differential responsiveness to training. The interactions might go undetected if only the average outcomes tapped by the main effects model were studied.

Research shows that certain people are more amenable to HRT than others. "Typically, wide differences are seen in the extent to which individual members 'take to' the sensitivity-training experience" (Harrison, 1966, p.518). Perhaps participants' personality traits account for the differences in how people respond to human relations training. Thus, a matching model approach to HRT seems more appropriate than simply averaging the gains made by the aggregated participants.

Consider, for example, the relationship between participant personality and rate of learning. A number of studies have attempted to identify those personality variables that differentiate between high and low learners in laboratory training settings (Harrison & Lubin, 1965; Joure et al., 1971; Anderson & Slocum, Jr., 1973; Poland & Jones, 1973; Mitchell, 1975). In attempting to discern those factors that facilitate laboratory learning, all of the previous studies address the element of personality style or personal orientation. Three of the above studies (Harrison & Lubin, 1965; Joure et al.,1971; Anderson & Slocum, 1973) explicitly address the variable of participant cognitive

style (1).

Research in education and psychotherapy suggests that cognitive style (as one personality variable) can account, in part, for the differential effectiveness of various educational and therapeutic programs (Witkin, Moore, Goodenough, & Cox, 1977; Witkin, Lewis, & Weil, 1968; Messick & Associates, 1976). There is, however, little research on cognitive styles in human relations training settings. In part, this is due to the fact that research on congitive styles and interpersonal behavior is in its infancy (Witkin & Goodenough, 1977a). Further, most of the cognitive style research in education and psychotherapy has taken place in experimental settings.

The pilot study described in this paper was an attempt, in a "real-life" setting, to explore the effects of cognitive style on various HRT outcomes. If cognitive style were found to be correlated with training outcomes, there would be several important implications for HR trainers.

The first and most useful result would be that trainers could use knowledge about participant cognitive style to modify the design or focus of the training. It might be found that persons with a particular cognitive style function best in, or have an aversion to, a certain type of training format. If that were so, the training format (e.g.,

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(1) Only Harrison & Lubin (1965) cite the underlying cognitive models of personality upon which the cognitive style literature is built (Kelly, 1955; Harvey, Hunt, & Schroeder, 1961; Witkin, Dyk, Paterson, Goodenough, & Karp, 1962).

high or low structure; group or individual focus, etc.) could be altered in response to the cognitive style needs of participants.

Second, with a large scale training program, it would be possible to group participants by cognitive style and provide each group with a more individualized training treatment. Mezoff reviews a number of matching model strategies that could be applied to HRT (1980a). He concludes that strategies which capitalize on client strengths are most suited to maximizing participant outcomes. Cognitive style is probably the most pervasive example of a client strength. If persons of different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training treatments so as to accomodate (or match) the various cognitive style requirements of the HRT participants.

The third implication is the least useful: cognitive style could be used as one factor in the process of screening potential laboratory attendees. But, to reject candidates for training only on the basis of having an inappropriate cognitive style would be a rather crude application of findings. Since psychometric screening is virtually unknown in HRT, this approach would not be practical and is not advocated.

This study was undertaken to explore whether cognitive style was correlated with training outcomes. If persons of

different cognitive styles were differentially responsive to a training treatment, then strategies could be developed to modify the training so as to accomodate (or match) the cognitive style requirements of the HRT participants.

Cognitive Style

A cognitive style is a characteristic mode of mental functioning; that is, a typical pattern of organizing information.

> Each individual has preferred ways of organizing all that he[/she] sees and remembers and thinks about. Consistent individual differences in these ways of organizing and processing information and experience have come to be called cognitive styles....They are conceptualized as stable attitudes, preferences, or habitual strategies determining a person's typical modes of perceiving, remembering, thinking, and problem solving.
>
> Messick & Associates, 1976, pp. 4-5.

The Field-Dependence-Independence Continuum

There are many different dimensions of cognitive styles (Messick, 1970, pp. 188-189), the most extensively

researched of which is the Field-Dependence-Independence continuum. The Field-Dependence-Independence (FDI) continuum was investigated in this study for two reasons: "1) It holds a substantial lead over any other dimension in the extent and quality of research; ...[and] 2) It is significantly related to interpersonal competencies..."(Cross, 1976, p. 116). Many names have been used to represent this continuum. Field-Dependence (FD) has been called a "global" perceptual style and Field-Independence (FI) has been called both "analytic" and "articulated".

Individuals who perceive in a Field-Independent (FI) fashion have three characteristics; (1) they are able to dis-embed hidden figures from a complex surrounding field, (2) they see items as discrete from their background, and (3) they are able to impose their own sense of structure on an unstructured perceptual field.

On the other hand, the three characteristics of Field-Dependent (FD) individuals are: (1) they tend to see a visual field as a whole, (2) they have difficulty in identifying the subcomponents of a visual field, and (3) they have difficulty imposing their own structure on an unstructured field.

A large body of literature from a variety of settings (Witkin, Moore, Goodenough, & Cox, 1977; Witkin & Goodenough, 1977a) has found overwhelmingly that FI persons tend to be analytic and task-oriented, whereas FD persons tend to have greater social skills and are oriented toward

interpersonal relationships. These differences suggest that the more FI individuals would be likely to be more task-oriented in a group situation while the more FD individuals would be more likely to focus on group maintenance activities.

The tendencies to perceive in either an FI or FD fashion extend across both perceptual and intellectual functioning. FD and FI styles have been found to extend to auditory and tactile modalities as well as visual perception. They are called cognitive styles because they are generally consistent and they cut across a wide variety of tasks and situations (Witkin, Goodenough, & Oltman, 1977)(2).

> People see and make sense of the world in different ways. They give their attention to different aspects of the environment; they approach problems with different methods for solution; they construct relationships in distinctive patterns; they process information in different but personally consistent ways . . . . Cognitive style . . . has a broad

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(2) Research in cognitive styles "developed in part because traditional research on ability failed to expose the processes generating individual differences" (Cronbach & Snow, 1977, p. 375).

influence on many aspects of personality and behavior . . .

Cross, 1976, p. 115-116

Seminal Research Exploring FD and FI Cognitive Styles

The names Field-Dependent (FD) and Field-Independent (FI) arose from the original experiments on perception that investigated how persons located an upright in space. Subjects had to locate a true vertical and ignore misleading visual or bodily cues in the experimental setting. If a subject could ascertain the true vertical despite the misleading visual cues, they were called "field-independent". The FI person based the position of the upright on their bodily cues, using internal physical sensation referents as opposed to external visual referents. The "field-dependent" person tended to be influenced by the prevailing visual field and aligned the upright according to the tilted visual stimuli.

Other experiments were conducted with rotating rooms, where centrifugal force caused the bodily cues to distract the FI subjects from what was actually a true vertical visual field. The FD subjects were not misled by the centrifugal force and only used the visual field.

Most recently the tests of embedded figures (EFTs) were developed to measure the FI and FD cognitive styles. FI subjects are able to break down a complex stimulus and impose their own structure or organization upon it. FIs use internal referents and FDs tend to use external ones.

Psychological Differentiation and Field-Independence

FI (based on the EPTs) is a measure of articulated perceptual functioning, or simply, perceptual differentiation. Psychological differentiation is a broad construct that encompasses at least four major areas: (1) articulated perceptual and intellectual functioning, (2) articulated body concept, (3) sense of separate identity, and (4) structured specialized defenses. Another component of psychological differentiation is interpersonal discrimination, the ability and willingness to make distinctions among a group of people (i.e., to categorize and label persons into different subgroups). The relationship of perceptual differentiation (FI) and interpersonal discrimination to psychological differentiation is shown in Figure 1.

insert Figure 1 about here

Research has shown that FD is "related to both a lack of discrimination across people in evaluating others and a halo effect in evaluating others' attributes" (Gruenfeld and Arbuthnot, 1968, p.993). Perceptual differentiation (FI) and interpersonal discrimination are moderately correlated (r = .36; Rhodes, Carr, and Jurji, 1968).

Research on FDI is extensive. For greater detail about

the historical development of Field-dependence-independence (FDI) research see Witkin, Moore, Goodenough and Cox (1977). There exists an indexed four volume bibliography of over 3,000 studies dealing with FDI cognitive styles. See Mezoff (1980c) for an extensive review of cognitive style research germane to human relations settings.

Method

Design

This is a field-based study of a company-sponsored human relations training program. The basic purpose was to explore, in general, the relationship between participant cognitive style and outcomes from training. Cognitive style dimensions investigated were field-dependence-independence (Witkin,1978) and interpersonal discrimination (Carr, 1979). The major training outcomes were measured by self-reports (administered at the beginning, middle, and end of the training) and peer-rankings (at the end of the training). Also administered were measures of dogmatism (Forced-Choice Christie, Form II) and androgyny (Spence & Helmreich, 1978). This study explored the relationships among dogmatism, androgyny, participant age, highest educational level attained, cognitive styles, and outcomes from training.

Background and Description of Population

This study was conducted in New Brunswick, Canada with employees of a large public utility company (n = 13). The participants (11 male, 2 female) had a mean age of 36

(range: 20-57) and a mean level of education of 10 years (range: 8-12). Prior to this lab all of the participants had attended a one week HRT event sponsored by their employer sometime in the past five years. Participants were both supervisory and non-supervisory personnel. Although the laboratory did not require participants to reside at the training site, about two-thirds did so. About 33% of the laboratory time was spent in a T-group. The remaining time was spent in structured activities. The senior trainer for that event was the author of this paper.

Description of Workshop

This optional training program was sponsored by the participants' employer and was conducted over six days (Sunday evening to Friday noon) for a total of 38 hours. The major theme of the workshop was stages of group development.

The schedule of activities during the week was as follows: Sunday Evening - Get Acquanted Exercises (1 hr.), T-Group (2 hrs.), Presentation of Lab Schedule of Activities, Needs Assessment, & Modification of Schedule (1 hr.); Monday Morning - Theory & Structured Exercises (T&SE) re: Team Building (2 hrs.), Administration of Group Embedded Figures Test (GEFT) instrument (20 min.), T-Group (1 hr. 30 min.); Monday Afternoon - T&SE re: Group Needs & Leader/Member Functions (1 hr. 30 min.), T&SE re: Leadership Styles (1 hr. 45 min.); Tuesday Morning - (two different programs were put on by the two facilitators) Participants had a choice of T&SE re: Transactional Analysis or T&SE re:

More on Leadership Styles (2 hrs.), T-Group (1 hr. 50 min.); Tuesday Afternoon - T&SE re: Perceptual Errors (2 hrs.), T-Group (1 hr. 15 min.); Wednesday Morning - T&SE re: Planning by Objectives (1hr. 30 min.), T-Group (2hrs. 20 min.); Wednesday Afternoon - Theory and Feedback from GEFT, Discussion of Learning Styles (1 hr. 30 min.), Structured Feedback Exercise (1 hr. 45 min.); Thursday Morning - Structured Feedback Exercise - continued (3 hrs. 50 min.); Thursday Afternoon - T&SE re: Group Development Stages (3 hrs. 15 min.); Friday Morning Small Group Discussions re: Re-entry & Application of Learning (3 hrs.), Evaluation (20 min.), Closing Exercise (30 min.).

Independent Variables

(1) GEFT - The Group Embedded Figures Test (Witkin, Oltman, Raskin, & Karp, 1971) was administered on Monday morning. This instrument provided a measure of perceptual discrimination. A high score on this instrument represents FI and a low score represents FD. The GEFT has a Spearman-Brown reliability coefficient of .82.

(2) IDT-M - A modified form of Carr's (1965, 1979) Interpersonal Discrimination Test (IDT) was administered at the last meeting of the program. This instrument provided a measure of interpersonal discrimination. Ss were asked to discriminate among the members of their T-group along a number of predetermined construct dimensions. The total number of categories that Ss used to distinguish among members of their T-group yielded a score of interpersonal

discrimination (IDT-M Discrimination). A high score represented a greater degree of interpersonal discrimination. The test-retest reliability for Carr's (1979) IDT is reported as .83 after one day and .63 after two months.

(3) Spence-Helmreich Personal Attributes Questionnaire - This instrument was used to tap the tough and tenderminded dimensions of participants. Three separate scores resulted: a masculinity (tough-minded) score, a femininity (tender-minded) score, and a score on the masculine-feminine continuum (Spence & Helmreich, 1978). Participants took this questionnaire on Tuesday evening on a "take home" (self-administered) basis.

(4) Christie Forced-Choice Dogmatism Scale (Form II) - This instrument (Robinson & Shaver, 1969, p. 245-250) was an attempt to tap the mobile-fixed continuum that may interact with FDI. Highly dogmatic Ss were hypothesized to be more rigid and less capable of altering their preferred cognitive mode of perception. Mobile Ss were expected to be less limited by their cognitive style. This instrument was also administered on a "take-home" basis. Though "take-home" instruments are potentially less reliable, this instrument does not appear to have a socially desireable response set and therefore it is expected that these scores were reliable.

Dependent Variables

(1) Self-report instrument - This instrument consisted of 14 items. Eleven items described feelings or behaviors. The items were derived from a review of the cogntive style literature on interpersonal behavior (Mezoff,1980c; Witkin & Googenough, 1977a; Witkin, Moore, Goodenough, & Cox, 1977). This instrument was designed to be brief and it was exploratory in nature. More items per category would have been desireable, however this is left to future research. Ss rated themselves by circling one of four choices (agree, agree somewhat, disagree somewhat, disagree) reflecting how they felt about their feelings/behavior in their T-group. The eleven items covered the following areas:

1. feel liked by others,
2. enjoy being with others,
3. enjoy physical closeness with others,
4. willingness to express anger,
5. attuned to others' unexpressed needs,
6. considers others' views and feelings,
7. looking for feedback,
8. active and involved participant,
9. primarily a spectator and observer,
10. performs group maintenance functions, and
11. performs task functions in group.

Items number 12, 13, and 14 on the instrument were scaled on a 7-point Likert scale. These items were designed to be global measures of the the variables of primary interest. Ss

rated their satisfaction with the group experience (very dissatisfied - very satisfied), their learning and understanding as a result of the group experience (minimal learning - moderate learnings - learned a great deal), and the emotional impact of the group experience (no impact - some impact - large impact). The self-report was administered three times: after the first full day, after the third day, and at the completion of the program.

The study hypothesized that PDs would: feel liked by others, enjoy being with others, enjoy physical closeness with others, be more attuned to others' unexpressed needs, be more considerate of others' views and feelings, look for feedback, act primarily as spectators and observers, and perform the group maintenance functions. The study hypothesized that the PIs would: be more willing to express anger, be active and involved participants, and perform the task functions in the group.

(2) IDT-M - The modified IDT (also serving as an independent variable) provided criterion measures for each participant along a number of dimensions (3). Each group member ranked the other members (including themselves, except as noted below) on the following dimensions:

1. concern for task,
2. concern for group maintenance,
3. satisfaction with group experience,

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(3) Each participant's rankings were treated as ordinal data. The ranks assigned to each person were then summed across all the participants.

4. learning and understanding as a result of group experience,

5. who perceives the real you (exclude self),

6. most emotionally open,

7. most prrefer as a friend (exclude self),

8. who is most similar to you (exclude self).

Dimensions 1, 2, 3, 4, 6, and 7 were scored by taking the total ranking across all the Ss which yielded a group consensus (total) score on those dimensions. In addition to the FI-task orientation and FD-maintenance orientation predicted above (under the self-reports), it was hypothesized that FDs would be ranked as more emotionally open and more desired as friends. Dimensions 5 and 8 were scored as follows. Only those persons whom the S rated at either the high or low extreme category of the continuum were considered. For those extreme groups (perceives the real you - most & least; similar to myself - most & least) the average GEFT score of the person(s) at the extremes was computed. Matching effects were anticipated at the high end and mismatch effects at the low end of the scale.

(3) Selection of Learning Partner - Each participant made a choice of a learning partner after only three hours of group interaction. This partnership formed the basis of a "reflection group" which met at the end of each day to reflect on and share their learnings from that day. Based on findings reported by Witkin (1978), cognitive style matching effects were hypothesized among these dyads. That is,

persons of similar cognitive styles were expected to choose each other.

(4) Percentage T-group Time Preferred - At the conclusion of the training, participants were asked to think about the balance of activities between structured exercises and time spent in a T-group. Ss were informed as to the actual percentage of T-group time of the lab they just finished (33%) and were asked to express a preference for what they would consider an ideal amount of T-group time (as a percentage of total training time). It was hypothesized that FDs would prefer a greater amount of T-group time than FIs.

Results

Table 1 reports the pearson correlation coefficients among the independent variables. GEFT scores were somewhat correlated with the IDT-M Discrimination Score ($p = .06$), however GEFT did not correlate with any of the other independent variables. The femininity scale of the Spence-Helmreich questionnaire was marginally correlated with the IDT-M Discrimination, reflecting less interpersonal discrimination among participants who reported themselves as having more feminine qualities. Correlations among the subscales of the Spence-Helmreich questionnaire are as would be predicted given the design of the instrument.

Table 2 reports the correlations between the independent variables and six of the dependent variables

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Insert Table 1 About Here

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from the IDT-M. These dependent variables are the average ranking of all members (except for friendship choice which did not include the S's ranking of self). Of all the independent variables, the GEFT was correlated with five out of the six dimensions. The Spence-Helmreich Femininity subscale appears to correlate positively with outcomes, whereas the Masculine-Feminine subscale had a trend towards correlating negatively with outcomes. These last results are probably an artifact of the androgyny instrument, as the Femininity subscale has participants rate themselves on such qualities as emotional, gentle, helpful, kind, aware of others, understanding of others, etc. Such qualities are likely to correlate with the reports of others regarding ratings on the Maintenance and Emotionally Open Criterion dimensions. These criteria dimensions, in turn, probably influence Satisfaction, Learning, and Friendship Choice. The Masculine-Feminine subscale has traits like agressive, dominant, indifferent to other's approval, never cries, etc. Such traits are unlikely to predict outcome except on the Task-dimension (and there they did not correlate positively!)

The outcome variable, Percentage of T-Group Preferred,

Insert Table 2 About Here
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was not correlated with any of the independent variables. Neither was it correlated with any of the other dependent variables.

Selection of Learning Partner data revealed no match-mismatch effects. The Correlation between S's own GEFT score and the GEFT of their partner was r = -.01 (p = .49).

Participants' GEFT scores were not correlated to the GEFT of others on either the "perceives the real you" or "similar to you" dimensions. Table 3 reports this data.

Insert Table 3 About Here

Table 4 reports the intercorrelations among some of the dependent variables from the IDT-M. The first four dimensions of the IDT-M are strongly interrelated. We suspected halo effects might have been the cause of Ss rating these dimensions in a similar fashion. The IDT-M was a relatively difficult task for this population (average grade level = 10), and therefore we also were concerned about the accuracy and effort with which Ss filled out the Instrument. However, a careful scrutiny of the raw data revealed that neither of these explanations was likely (4).

Insert Table 4 About Here

Since the GEFT was the best predictor of the group ranked IDT-M criterion measures, T-tests were performed on all of the self-report items (3 administrations times 14 items) by dividing the population into two groupings based on their GEFT scores. This seemed like a fruitful tact since the GEFT scores had an especially large standard deviation (see Table 6). The low scoring group ranged from 5-9, and the high group ranged from 13-17. Since there were no scores between 9 and 13, there was a bimodal distribution on the GEFT measure.

Out of 42 T-tests only the following self-reports distinguished between the high and low GEFT groups:

Administration 1 - FDs reported themselves as primarily spectators and observers ($t = 2.43$, $p=.03$), FIs reported performing maintenance functions in the group ($t = 2.20$, $p = .05$);

Administration 2 - FIs reported performing maintenance functions ($t = 2.65$, $p = .02$). On the third administration there was a trend to again support FIs rating themselves as

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(4) Ss made detailed discriminations as to the order of their group members rankings even when including persons in the same category. Comparison of the discriminations from one dimenison to the next showed that Ss rated the different dimensions separately and did not simply turn back to earlier dimensions to copy their previous rankings.

maintenance-oriented($p = .16$). A trend also existed for the FDs to rate the group as having a stronger impact upon them during the first and second administration ($p = .13$ and $.08$, respectively). No other significant differences were found between the high and low GEFT groups on the self-report measures.

Although the self-report results are not particularly significant, two things may be noted about the above findings. First, FIs reported themselves as Maintenance-oriented. This result, while contradicting our hypothesis, was corroborated by the peer-ranking instrument. Second, while the other self-report relationships are not strong, they all support the direction of our other hypotheses.

Insert Table 5 About Here

Correlations were computed between the self-ratings and the ratings by others (from the IDT-M) on the following dimensions: task, maintenance, satisfaction, and learning. These results are found in Table 5. Self-Ratings were not generally correlated with the ratings of the group. The only exception was in the case of maintenance-oriented behaviors. It should be noted that while the data from the last administration of the self-report was collected at the same

time as the peer-ranking data, the correlations are the weakest there.

Insert Table 6 About Here

Table 6 reports ranges, means, and standard deviations for many of the variables discussed here. The only variables omitted from Table 6 were the self-report items (which did not significantly discriminate between persons with high and low GEFT scores) and the scores from the IDT-M dimensions 6 and 8. Means of scores from dimensions 6 and 8 did not differ significantly. However, there was a trend toward Ss feeling most accurately perceived by, and most similar to, persons with higher GEFT scores.

Discussion

FI participants appeared to be the most involved participants and appeared to gain the most. Table 2 indicates that the Field Independent participant was rated by group members as: (1) being task oriented, (2) being maintenance oriented, (3) being more satisfied with the group experience, (4) learning the most, and (5) being more emotionally open.

The extensive literature on FDI predicts the finding of FIs being task oriented. However, it is quite unexpected that FIs should also be rated as maintenance oriented and

emotionally open. The following explanation is offered for these unpredicted results: FIs were task and achievement oriented even when the task at hand was interpersonal relations. When their attention was focused on social learning in the group setting, FIs apparently "outperformed" FDs in the area of emotional openness and in providing group maintenance behaviors.

The finding of FIs being rated as the most satisfied and as having learned the most is consistent with earlier HRT research (Harrison & lubin; Mitchell) which showed task and achievement oriented persons as being high learners in lab settings. Support for the finding of FI superiority in HRT can also be found in Steele's (1968) study where analytic/problem-solving oriented persons profited most from training. It should be noted that the results of Poland and Jones (1973) appear to be contradictory to the present study.

The FI style may provide the HRT participant with superior analytic and cognitive structuring skills with which to interpret, analyze, and internalize their HRT experience. FI persons might be more likely to be satisfied, as well. This explanation is well founded in cognitive style theory: A great deal of cognitive style research documents the superior analytic abilities of FIs (Witkin,1978). Hypothesizing the effects of cognitive styles on HRT outcomes seems to be a viable alternative to the explanations offered by Harrison & Lubin and others, namely:

(1) that the task oriented members experienced "culture shock" and were, therefore, pushed toward change, and (2) that the interpersonally oriented members were already socially skilled and had less room to improve.

The hypothesis of FDs preferring low structure (more T-grouping) and FIs preferring high structure (less T-grouping) was not supported (5). There are at least two possible inturpretations of this finding. First, the FDs preference for interpersonal interaction may have been fully satisfied by the structured activities. Second, the discomfort that FDs felt as a result of the T-group ambiguity possibly negated the expected preference of FDs for the interpersonal context provided by the T-group.

Cognitive style matching effects were not found in the selection of learning partners. Neither were matching effects observed in participants selections of what persons "perceive the real you" or "are most similar to you". However, the small sample size of this study (n=13) should engender caution in the interpretation of all findings.

Table 5 reveals that self-ratings were not corroborated by ratings of others. Self ratings have a reputation for being notorously unreliable. Not suprisingly, therefore,

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(5) The author has made the choice here to refer to learning climates that are intentionally designed to be ambiguous, such as a T-group, as being "unstructured." However, there is a structure to a T-group, despite the fact that participants may not perceive any such structure. A T-group might alternatively be called "complexly structured," whereas structured exercises (role plays, simulation games, etc.) might be called "simply structured."

very few differences between FD and FI persons were found on the self-rating instrument. This unreliability is accounted for, perhaps, by understanding the influence that cognitive style has on a persons view of their world. It seems likely that FD and FI persons would have a different conceptualization (or different reference frame) for what constitutes, for example, "task oriented behavior." Each person judges themselves by his/her own private standard on a self-rating instrument. Only by taking the group's average rankings of each member can we hope to obtain an objective picture of a persons behavior (6). The study of Lieberman et al. confirms the utility and accuracy of outcome ratings based on co-participant evaluations (Lieberman, Yalom, & Miles, 1973).

Another finding of the present study is the high degree of intercorrelation among task, maintenance, satisfaction, and learning (see Table 4). Out of six possible correlations three reached $p < .001$, and two reached the $p < .01$ level of significance. Pearson r's ranged from .58 to .88. Halo effects, as mentioned in the Results section, probably did not account for the clustering of group ranked outcomes. In some fashion the above four outcome variables clustered together and were predicted by high FI scores on the GEFT ($r = .65$ to $.82$, $p < .01$ for all four outcomes). In this human relations laboratory the field-independent persons were

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(6) When subgroups of FD and FI persons were compared, the results did not differ significantly from the aggregated group rankings.

clearly the high learners, as seen by others.

Task and maintenance orientations have traditionally been thought of as independent dimensions. The considerable body of literature on leadership provides strong support for considering the two orientations separately (Stogdill, 1974). IF our finding is supported by other T-group research, then the conceptualizaidn of task and maintenance orientation as dimensions performed by different people (or by different styles of people) may have to be modified in the HRT context. That is, in HRT one of the tasks <u>is</u> group maintenance.

Future Research

One major outcome of this project is to call for HR research that employs a design which takes into account the differential effects of training on various participant subpopulations. Large scale aptitude-treatment-interaction research projects (with multiple treatments and large sample sizes) are unlikely in HRT. However, when providing a single training treatment, it seems crucial to understand whether the training is effecting different persons in different ways. Researching differential effects, even within a single treatment training program, is important for two reasons. If differences are found: 1) the training may then be be able to be better tailored to participant needs, and 2) unproductive matches of certain participants with certain types of training can be avoided.

Of the many possible matching variables which could be used to increase training outcomes, one stands out as the most promising: cognitive style. Future investigations of the influence of particpant cognitive styles on HRT outcomes should take the following factors into consideration:

1. The cognitive style dimension that is investigated should be one that is likely to interact with the type of treatment that HRT provides. In addition to Field-Dependence-Independence other researchers might consider investigating cognitive complexity versus simplicity, reflectiveness versus impulsivity, and tolerance for unrealistic experiences (Messick, 1970).

2. Research related to Field-Dependence-Independence should take into account mobility and rigidity as an intersecting dimension (Witkin, 1978). This dimension will probably affect training outcomes, too. (Mobile individuals are those persons that can shift or adapt their perceptual style contingent upon the situational demands.) Research findings may be clouded by the presence of mobile individuals if this variable is not controlled. HRT could be explicitly designed to facilitiate cognitive flexibility.

3. Raters, other than participants, should be included in the evaluation of training outcomes to corroborate the measures obtained here through co-participant and self-report rankings. Evaluations by the group facilitators, trained observers, and back-home colleagues could be included to form an inter-source consensus. The reliability

of self ratings by participants could perhaps be increased by having trainees rate themselves against some objective standard (e.g., a videotape modeling certain types of behaviors).

4. Interaction effects of cognitive styles will probably be more evident if the training treatment that is provided is very structured or very unstructured.

5. The length and spacing of the training treatment is a variable that may influence differential outcomes for persons of varying cognitive styles. Differential effects related to the length and spacing of training have been noted by Schubert (1972) and Bunker & Knowles (1967).

6. The nature of the outcome variables chosen and the measures used to assess those variables may be differentially positive for different cognitive styles. Clarity regarding such "bias" is critical.

Endnote. Human relations trainers pay lip service to individual differences, but we infrequently modify our training designs to accomodate the perceptual or cognitive styles of our participants. Understanding the differences among persons of varying cognitive styles is a first step towards accepting the styles of others. Acceptance can be a difficult task, especially if others' styles are at variance with our own style or incompatible with our predetermined training design. If we can adopt the same behavioral flexibility that we encourage in our participants, then we will be better able to adapt ourselves and our training designs to the cognitive style needs of trainees.

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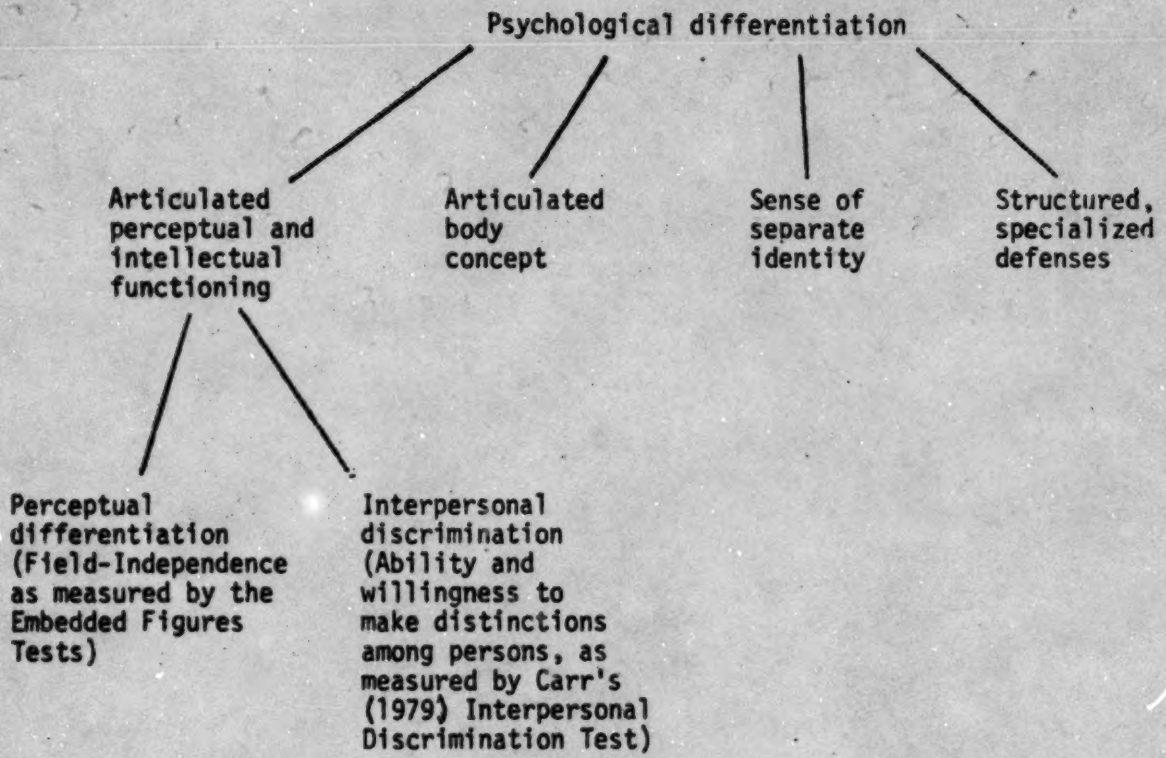
Psychological differentiation
Articulated perceptual and intellectual functioning
Articulated body concept
Sense of separate identity
Structured, specialized defenses
Perceptual differentiation (Field-Independence as measured by the Embedded Figures Tests)
Interpersonal discrimination (Ability and willingness to make distinctions among persons, as measured by Carr's (1979) Interpersonal Discrimination Test)

Figure 1. Relationship of perceptual differentiation & interpersonal discrimination to psychological differentiation.

Table 1

Correlations Among Independent Variables (n = 13)

Measure	2	3	4	5	6
1. Group Embedded Figures Test	.47t	.29	.21	.26	-.34
2. IDT-M Discrimination		.07	-.08	-.42t	-.30
3. Christie Forced Choice Dogmatism			-.13	.01	-.42 t
Spence-Helmreich Questionnaire					
4. Masculinity Subscale				-.31	.53 *
5. Femininity Subscale					-.32
6. Masc.-Fem. Subscale					

t $p<.10$
* $p<.05$

Table 2 six

Correlations Between Independent Variables and Dimensions From the IDT-M (n=13)

	Dependent Variables from IDT-M					
	Task-Oriented	Maintenance-Oriented	Most Satisfied	Learned Most	Emotionally Open	Chosen as a Friend
GEFT	.78**	.82**	.65**	.72**	.49*	.37
IDT-M Discrimination	.06	.18	.29	.15	.21	-.20
Dogmatism	-.11	.20	.11	-.15	.15	.18
Masculinity	.20	-.03	-.36	.15	-.40t	-.15
Femininity	.49*	.45t	.26	.44t	.43t	.37
Masc.-Fem.	-.18	-.32	-.50t	-.17	-.37	-.49*

t $p<.10$

* $p<.05$

** $p<.01$

Table 3

Correlations Between Participants' GEFT Scores and GEFT Scores of Others seen as "Perceiving the Real You" (Most and Least) and "Similar to You" (Most and Least). (n=13)

	Dependent Variables (Dimensions 5 & 8 from the IDT-M)			
	Perceives the Real You		Similar to You	
	Most	Least	Most	Least
GEFT	-.05	-.18	.03	-.38t

t p=.10

Table 4

Correlations Among Six Dimensions From the IDT-M (n=13).

Measure	2	3	4	5	6
1. Task-Oriented	.84***	.58*	.88***	.36	.44t
2. Maintenance-Oriented		.69**	.79***	.40t	.61*
3. Most Satisfied			.69**	.68**	.45t
4. Learned the Most				.38t	.31
5. Emotionally Open					.32
6. Chosen As Friend					

t $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Table 5

Correlations Between Self-Ratings (Over the Duration of the Lab) With Ratings of Others (At The End Of The Lab). (n=13)

Maintenance Score (Rated By Others) Correlated With Self-Rating At:		
Administration 1	Administration 2	Administration 3
.70**	.81***	.44t

Task Score (Rated By Others) Correlated With Self-Rating At:		
Administration 1	Administration 2	Administration 3
.49t	.42t	-.05

Satisfaction Score (Rated By Others) Correlated With Self-Rating At:		
Administration 1	Administration 2	Administration 3
-.27	.34	.09

Learning Score (Rated By Others) Correlated With Self-Ratings At:		
Administration 1	Administration 2	Administration 3
.34	.32	.29

t $p < .10$

* $p < .05$

** $p < .01$

*** $p < .001$

Table 6

Ranges, Means, And Standard Deviations of Selected Independent And Dependent Variables (n=13)

Measure	Range	Mean	Std. Deviation
GEFT	5- 17	11.54	4.33
IDT-M/Discrimination	13- 66	26.83	15.76
Dogmatism	8- 14	10.54	2.11
Masculinity	13- 30	21.23	4.83
Femininity	14- 31	21.69	5.31
Masc.-Fem.	9- 19	14.23	3.37
Task*	47-159	117.31	32.21
Maintenance*	68-164	125.69	27.67
Satisfaction*	109-156	135.54	15.53
Learning*	90-164	133.46	20.67
Emotionally Open*	96-156	131.62	17.60
Chosen As Friend*	89-135	114.92	17.09
% T-Group Preferred	20- 50	34.39	8.22

* These scores represent the sum of the rankings of each of the group members.